

**REMARKS**

Further to the Request for Continued Examination and Suspension of Action Request filed on November 16, 2006, Applicants request continuance of prosecution in the present application.

Claims 1-7 are now present in this application. Claim 8 has been cancelled.

In view of the attached Declaration Under 37 C.F.R. 1.132 and the remarks herein, Applicants respectfully request that the Examiner withdraw all outstanding rejections and allow the currently pending claims.

**Issues Under 35 U.S.C. § 103(a)**

Claims 1-4 and 6-8 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Tsuchiya et al. in view of Hosokawa et al. (EP 0257951) (hereinafter Hosokawa '951). This rejection is respectfully traversed.

It is initially noted that the Examiner asserts that the above-mentioned claims are rejected "for the rationale recited in paragraph 3 of the Office Action dated on November 14, 2005" (see page 2 of the outstanding Office Action). The Examiner also asserts that the claims are rejected over "Tsuchiya et al. (U.S. 5,903,399)". However, it is submitted that the Office Action of November 14, 2005 referred to **Tsuchiya et al., U.S. Patent Application Number 2002/0034911** (emphasis added). Consequently, the following comments are directed to the later (hereinafter Tsuchiya '911).

Applicants respectfully submit that the Examiner has failed to establish a *prima facie* case of obviousness. To establish a *prima facie* case of obviousness, three basic criteria must be

met. First, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings. Second, there must be a reasonable expectation of success. Finally, the prior art reference (or references when combined) must teach or suggest all the claim limitations. The teaching or suggestion to make the claimed combination and the reasonable expectation of success must both be found in the prior art, and not based on applicant's disclosure. *In re Vaeck*, 947 F.2d 488, 20 USPQ2d 1438 (Fed. Cir. 1991).

The instant invention is directed to a process for preparing a water-absorbent resin by polymerizing to **completion** (emphasis added) an  $\alpha$ - $\beta$  unsaturated carboxylic acid monomer to produce a **polymerized** (emphasis added) water-containing gelated product, adding a metal chelating agent, adding a reducing agent or an oxidizing agent to the **previously polymerized** (emphasis added) water-containing gelated product, and drying the gelated product. Applicants have discovered that the novel process of the instant invention results in significant improvements in the discoloration resistance of the water-absorbent resin.

Tsuchiya '911 discloses a water-absorbent resin made from an unsaturated carboxylic acid monomer. In stark contrast to the instant invention, Tsuchiya '911 **only** (emphasis added) uses a reducing or oxidizing agent to **polymerize** (emphasis added) the monomer. Clearly, Tsuchiya '911 does not disclose, teach or suggest the addition of a reducing or oxidizing agent to an **already polymerized** (emphasis added) water-containing gelated product. As a matter of fact, Tsuchiya '911 merely discloses a method for preparing the unsaturated carboxylic acid monomer which Applicants utilize at the beginning of their inventive process. Furthermore, Tsuchiya '911

fails to disclose or suggest a step of adding a metal chelating agent during the preparation of the water-absorbent resin.

Hosokawa '951 fails to cure the deficiencies of Tsuchiya '911. Hosokawa '951 discloses a disposable diaper having an absorbent polymer comprising an absorbent resin and a metal chelating agent. Hosokawa '951 fails to disclose a step of adding a reducing or oxidizing agent to a polymerized monomer.

The attached Declaration evidences the unexpected results obtained by adding a reducing agent **after the polymerization** (emphasis added) when compared to the results obtained by the conventional technique of adding a reducing agent before the polymerization, as taught by Tsuchiya '911.

A Comparative Experiment was conducted to determine the results obtained by the conventional technique disclosed by Tsuchiya '911. In this Comparative Experiment, the same procedures as in Applicants' Example 3 (see Applicants' Specification at page 20) were carried out, except that a reducing agent (anhydrous sodium sulfite) was added before polymerization, as taught by Tsuchiya '911. The Yellow Index was measured for each of the resulting water-absorbing resins, according to the method described in Applicants' Specification (see Applicants' Specification at pages 26-28).

As shown in the attached Declaration (see Applicants' Declaration at page 4, "Results and Discussion"), **unexpected results are obtained** (emphasis added) by following Applicants' process for preparing a water-absorbent resin, where the reducing agent is added after the polymerization (Yellow Index of 7.4 immediately after drying and 8.2 after 20 days), as compared to the conventional process disclosed by Tsuchiya '911, where the reducing agent is

added before polymerization (Yellow Index of 9.9 immediately after drying and 14.1 after 20 days).

When a reducing agent such as sulfite is added before the polymerization, a redox initiator system is provided with initiator peroxide, thereby accelerating the cleavage of the radical. Since the reducing agent is consumed during polymerization, small amounts remain after polymerization. Accordingly, in a reaction system where the oxidizing agent and reducing agent are added before the polymerization (as disclosed by Tsuchiya '911), the agents do not remain in effective amounts after polymerization and sufficient effects are not achieved.

In stark contrast, Applicants have discovered that by adding the reducing agent after the polymerization, unexpected results are obtained, including improved yellow indexes and discoloration resistance.

Clearly, as discussed above, neither Tsuchiya '911 nor Hosokawa '951, alone or in combination, teach or suggest every limitation of the instant invention. Furthermore, the method of the present invention exhibits unexpected results over the conventional methods disclosed by these references. Accordingly, none of these references renders the instant invention unpatentable.

Because the instant invention, as set forth in Applicants' claims, is not disclosed or made obvious by the cited prior art, reconsideration and withdrawal of this rejection are respectfully requested.

*Issues Under 35 U.S.C. § 102(e) or, in the alternative, 35 U.S.C. §103(a)*

Claim 5 stands rejected under 35 U.S.C. § 102(e) as being anticipated by, or in the alternative, as being obvious over Tsuchiya '911. This rejection is respectfully traversed.

It is initially noted that claim 5 is a **dependent** (emphasis added) claim. Dependent claims refer back and further limit another claim (37 CFR 1.75(c)). Thus, it follows that dependent claims **incorporate all the limitations** (emphasis added) of the claim they limit. Claim 5 depends on claim 1 and, therefore, incorporates every single limitation thereof. Consequently, Applicants respectfully submit that claim 5 can not be anticipated by Tsuchiya '911 under 35 U.S.C. §102(b) because claim 1, which it further limits, is not anticipated by said reference (as acknowledged by the Examiner in the outstanding and previous Office Actions). Reconsideration and withdrawal of this rejection is respectfully requested.

Furthermore, as previously discussed, Tsuchiya '911 does not disclose, teach or suggest the addition of a reducing or oxidizing agent to an **already polymerized** (emphasis added) water-containing gelated product, nor does it suggest the addition of a metal chelating agent. Furthermore, as acknowledged by the Examiner, Tsuchiya '911 fails to teach or suggest that the water-absorbent resin is allowed to stand at 50°C and 90% relative humidity for 20 days, resulting in a Yellow Index of 12 or less.

The Examiner contends that "in view of the substantially identical monomer, reducing and oxidizing agents, metal chelating agent, process producing such products being used by both Tsuchiya and the applicant, it is the examiner position (sic) to believe that the product....of Tsuchiya is substantially the same as the water-absorbent resin recited in claims 1, 5 and 8...". Applicants respectfully disagree.

The Examiner had previously acknowledged that Tsuchiya '911 **fails to disclose or suggest** (emphasis added) the addition of a metal chelating agent (see Office Action dated November 14, 2005 at page 5, lines 18-21). Therefore, it is absolutely impossible that Tsuchiya '911 discloses a "substantially identical" metal chelating agent, as the Examiner contends, because Tsuchiya '911 does not disclose metal chelating agents at all.

Furthermore, as previously discussed, Tsuchiya '911 **only** (emphasis added) uses a reducing or oxidizing agent to **polymerize** (emphasis added) the monomer. Tsuchiya '911 merely discloses a method for preparing the unsaturated carboxylic acid monomer with which Applicants start off their inventive process.

Applicants respectfully submit that because Tsuchiya '911 fails to explicitly or impliedly disclose each and every limitation of claim 5, it follows that this reference can not anticipate the same. Furthermore, because one of ordinary skill in the art would not be motivated to modify the teachings of Tsuchiya '911 by adding a reducing or oxidizing agent to a polymerized monomer, adding a metal chelating agent or allowing the water-absorbent resin to stand at 50°C and 90% relative humidity for 20 days, resulting in a Yellow Index of 12 or less, Tsuchiya '911 also fails to render claim 5 obvious.

Because the instant invention, as set forth in claim 5, is not disclosed by the cited prior art, reconsideration and withdrawal of this rejection are respectfully requested.

**Conclusion**

All of the stated grounds of rejection have been properly traversed, accommodated, or rendered moot. Applicants therefore respectfully request that the Examiner reconsider all presently outstanding rejections and objections and that they be withdrawn. It is believed that a full and complete response has been made to the outstanding Office Action and, as such, the present application is in condition for allowance.

Should there be any outstanding matters that need to be resolved in the present application, the Examiner is respectfully requested to contact Gerald M. Murphy, Jr., Reg. No. 28,977 at the telephone number of the undersigned below, to conduct an interview in an effort to expedite prosecution in connection with the present application.

If necessary, the Commissioner is hereby authorized in this, concurrent, and future replies to charge payment or credit any overpayment to Deposit Account No. 02-2448 for any additional fees required under 37.C.F.R. §§1.16 or 1.14; particularly, extension of time fees.

Dated: February 16, 2007

Respectfully submitted,

By 

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Attachment: Declaration Under 37 C.F.R. 1.132